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ratio of the diameter of the ring to that of the planet is by estimation that of 3 to 2. I am unable to account for my not having noticed the ring earlier."

Hamburg. Equatoreal. (M. Rümker.)

Date.	Hamburg M.T.	R.A.	Dec.
1846.			
Dec. 24	6° 9′ 19″·0	328° 26′ 27″·3	−13° 21′ 8″·7
25	5 40 0·0	328 27 45·5	13 20 24·6
27	5 41 34·6	328 30 56·4	13 19 31·7
28	5 20 31·4	328 32 29·3	13 18 57·9
1847.			
Jan. 5	5 32 43·0	328 45 48·3	13 14 23·0
8	5 46 50·0	328 51 15·8	13 12 27·9
11	5 45 19·8	328 56 43·5	13 10 27·9
12	5 55 52·6	328 58 35·5	13 9 48·5
13	5 52 21·7	329 0 29·5	−13 9 4·7

Corrected Elements of NEPTUNE, *by Mr. Adams.*

"The following results respecting the orbit of the recently discovered planet *Neptune* may, perhaps, not be uninteresting to the Society. They are deduced from the early Cambridge observations of August 4 and August 12, combined with nine later ones made at the same observatory, those being generally selected where the planet was observed with the equatoreal and meridian instruments on the same day. To each element found I have annexed the probable error to which it is subject, in order that it may be judged what reliance may be placed upon the value obtained. It will be seen that some tolerably definite information respecting the orbit is already afforded by the observations, though they are, of course, insufficient to determine, even roughly, all the elements.

Epoch 1846, Aug. 8·0, G. M. T.

True Long. of the Planet, M. Eq. 1847·0	326° 41′ 12″·3 ± 2″·55
Motion in Longitude in 100 days	36′ 5″·52 ± 2″·82
Distance of Planet from the Sun	30·008 ± 0·0312
Change of Distance from the Sun in 100 days	−0·01947 ± 0·0365
Heliocentric Latitude, South	30′ 34″·35 ± 2″·24
Increase of Heliocentric Latitude in 100 days	1′ 4″·44 ± 2″·05

"Hence we find,

Inclination of the Orbit	1° 46′ 49″·1 ± 3′ 7″
Longitude of Descending Node	310° 3′ 44″·0 ± 30′ 37″
Semi-latus Rectum	30·228 ± 0·0922

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'Also, if e be the eccentricity of the orbit and α the true anomaly,

$$e \cos \alpha = 0{\cdot}00733 \pm 0{\cdot}00235$$
$$e \sin \alpha = -0{\cdot}06223 \pm 0{\cdot}1167$$

Hence the most probable values of the eccentricity and longitude of the perihelion appear to be,

Eccentricity .... = 0·06266.
Longitude of Perihelion = 49° 58′

"These latter are merely given as the results of the calculation, the magnitude of the probable error of $e \sin \alpha$ shewing that no weight is to be attached to them. It may be seen, however, that the eccentricity cannot be large.

"The most probable value of the mean distance = 30·35, with a probable uncertainty of about 0·25: the corresponding periodic time = 167·2 sidereal years, which is very nearly double that of *Uranus*. Hence the mutual disturbances of these two planets will present some remarkable peculiarities analogous to those of the first and second, and of the second and third satellites of *Jupiter*.

"The probable errors given above have been found by considering the probable error of each observation to be 3″, the mean of the observations on Aug. 4 and Aug. 12 (which, however, agree very well with each other) being taken as a single observation.

"This estimation appears to be quite high enough, as the remaining differences between theory and observation only exceed that amount in two instances."

Observations of ASTRÆA.

CAMBRIDGE. With the Equatoreal. (Professor Challis.)

	Greenwich M.T.	R.A.	N.P.D.	No. of Measures.	Star of Reference.
1847.	h m s	h m s	° ′ ″		
Jan. 13	18 19 22·3	15 0 5·70	102 33 4·3	7	Piazzi, XIV. 268
14	18 28 48·6	15 1 38·04	102 37 41·9	5	Piazzi, XV. 1.

"These places are free from refraction and parallax. The mean of the errors of M. d'Arrest's ephemeris is +8ˢ·12 in right ascension, and +50″·0 in north polar distance. The assumed mean places Jan. 1, 1847, of the stars, derived from Piazzi, are as follows:—

		h m s		° ′ ″
Piazzi, XIV. 268	R.A.	14 58 11·16	N.P.D.	102 18 33·1
Piazzi, XV. 1		15 2 49·71		102 28 12·0

"The planet was readily found, but the observations were taken with difficulty, on account of the misty state of the atmosphere."

HAMBURG. Equatoreal. (M. Rümker.)

	Hamburg M.T.	R.A.	Dec.
	h m s	° ′ ″	° ′ ″
1847. Feb. 12	16 33 54	235 9 36·2	−14 3 33·0
22	17 6 58	237 44 46·4	−14 11 13·6
24	16 27 10	238 11 46·7	−14 11 41·7

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